Scanner Features

The ES-600C is a low-cost, high-resolution (300 DPI) color image scanner for use with A4 or letter-size sheets. Its main features are:

- ❑ Basic resolution: 300 DPI
- ❑ Full-color scanning: By means of an 8-bit A / D converter
- ❑ Monochrome levels: 256
- ❑ Reading areas: A4 and US letter size
- ❑ High speed scanning: Monochrome Approx. 20 sec.
  Color (page) Approx. 70 sec.
  Color (line) Approx. 80 sec.
- ❑ Zoom function: Scanned image can be reduced / enlarged **from 50% to 200%**

Cl Software command level: ESC / I - B4

- ❑ Available options: Auto Document Feeder (ADF), Transparency Unit
- ❑ ES-300C emulation
- ❑ Selectable resolution allows use with various printers
- ❑ Scanner can perform line-sequence reading (l-time color reading)
- ❑ Scanner offers tone correction levels and various other processing features
- L Color correction tables are available for various printer types
- ❑ Block data transfer function is available

Options

Option Name	Product Number	Description
Automatic Document Feeder (ADF)	B813011	Feeds up to 30 sheets. Replaces scanner cover, but still allows scanning of individual items.
Transparency Unit	B813021	Allows scanning of slides, negatives, and transparencies. Replaces scanner cover, but still allows scanning of individual items. Allows scanning of items up to **5" X 5".**
Bidirectional Parallel **Interface Kit**	BIDIDOS	Includes bidirectional parallel board for the PC, cable, TWAIN scanner driver, and image editing software.
SCSIDOS **Interface** Kit	SCSIDOS	Includes SCSI board for the PC, cable, TWAIN scanner driver, and image editing software.
Mac Interface Kit	ESMAC	Includes scanner Plug-In Module (PM) and Desk Accessory (DA), cable, Epson Apple Scanner Driver. and image editing software.

Option Name	Product Number	Description
Bidirectional Parallel Interface Board for the PC	B808012	Available separately from kit for customers who already have scanning software. Provides a bidirectional port in the PC to connect to the parallel interface in the scanner.
Bidirectional Parallel Cable	C1-9E-A	Available separately from kit for customers who already have scanning software.
ES-600C-B	B023001-B	Scanner w/bidirectional parallel port.
ES-600C-S	B023001-S	Scanner w/SCSI ports.

Interface Kit Contents

BIDIDOS Interface Kit

- ❑ Picture Publisher 3.1
- ❑ Caere OCR TryPack
- ❑ TWAIN Scanner Driver
- ❑ Bidirectional Interface Board for the PC
- ❑ Bidirectional Parallel Cable

***SCSIDOS Interface* Kit**

- ❑ Picture Publisher 3.1
- ❑ Caere OCR TryPack
- ❑ TWAIN Scanner Driver
- ❑ SCSI Interface Board for the PC
- ❑ SCSI Cable (50-pin to 50-pin)

ESMAC *Interface Kit*

- ❑ Adobe Photoshop 2.0
- ❑ PIM and DA
- ❑ Epson Apple Scanner Driver
- ❑ SCSI Cable (50-pin to 25-pin)

Scanner Specifications

Scanner type:	Flatbed, color / monochrome
Photoelectric device:	CCD line sensor
Effective pixels:	2550 dots by 3510 dots at 300 dpi, ***100%***
Maximum document size:	**216** mm by 297 mm **(8.5** inches by 11.7 inches) US letter size or A4
Scanning resolution:	300 dpi
Output resolution:	**50, 60, 72, 75, 80, 90, 100, 120, 133, 144,** 150, 160, 175, 180, 200, 216, 240, 300, 320, 360, 400),480 and 600 dpi. Values above 300 through software interpolation.

Scanning speed:	Monochrome mode: about 20 seconds Color page sequence mode: about 70 seconds Color line sequence mode: about 80 seconds
Color separation:	By switching light sources (G, R, B)
Reading sequence:	Monochrome mode: One-time scanning (Dropout color selectable from Green, Red, or Blue.) Color page sequence mode: Three-time scanning (G, R, B) Color line sequence mode: One-time scanning (G, R, B)
Size:	***50% to 200%*** in 1% steps.
Image data:	8 bits per pixel per color maximum
Gradation:	8 bits per pixel per color maximum
Brightness:	***7*** levels
Halftoning process:	Enable / disable selectable. 3 halftoning modes (A, B, and C) and 4 dither patterns (A, B, C, and D) for bi-level data (Halftoning mode A only in color line sequence mode) (2 downloadable dither patterns) Halftoning mode A for quad-level data
Gamma correction:	2 for CRT display 3 for printer 1 for user defined
Color correction:	1 type for CRT display 3 types for printer output, available in color line sequence mode only
Interface:	Bidirectional parallel or SCSI
Light source:	Noble gas fluorescent lamps (3 lamps)
Reliability:	Main unit: MCBF 100,000 cycles of carriage movement
Dimensions and weight:	Width: 333 mm (13 inches) Depth: 568 mm (22 inches) Height: 125 mm (5 inches) Weight: about 9 kg (20 lbs)

Electrical Specifications

Voltage:	120 VAC, ± 10%
Frequency:	***49.5*** to 60.5 Hz
Power consumption:	Approx. 20 W (self test in monochrome mode)
Insulation resistance:	10 MΩ between AC power line and chassis at 500 VDC

Environmental Conditions

Temperature:	Operation: 40° F to 95° F (5° C to 35° C) Storage: 10° F to 150° F (-20° C to 60° C)
Humidity:	Operation: 10% to 80%, without condensation Storage: 10% to 85%, without condensation
Operating conditions:	Ordinary office or home conditions. Extreme dust should be avoided. Operation under direct sunlight or near a strong light source should be avoided.

Note: Specifications are subject to change without notice.

The Control Panel

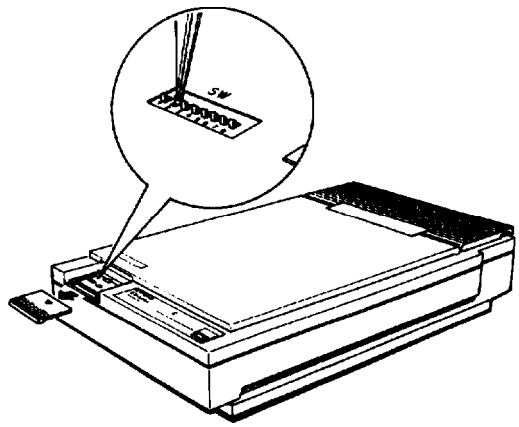
Buttons

OPERATE button	Turns the scanner on and off. When the power is turned on, the scanner is reset.
RESET button	Initializes the scanner. Every value is reset to the default value. The RESET button is located under the DIP-switch cover.

Indicators

READY (green LED)	Comes on when the scanner is ready to receive data.
ERROR (red LED)	Indicates that an error has occurred.

Dip Switches



Switch	Description	On	Off
1-1	Self test	On	Off
1-2	Self test	Color	Monochrome
1-3	Color self test	Line	Page
1-4, 1-5, 1-6, 1-7	Not used	Always off	
1-8	ES-300C emulation	On	Off

Default setting: All Off

Pin Assignments

Parallel

Signal pin assignments

Pin No.	Return pin	Signal	Direction	Function
1	19	$\overline{\text{STROBE}}$	IN/(OUT)	$\overline{\text{STROBE}}$ pulse to read in or send out data. Pulse width must be more than 0.5 microseconds at the receiving terminal.
2	20	DATA0	IN/OUT	These signals represent information of bits 1 to 8, respectively. Each signal is at a high level when data is logical 1 and low when it is logical 0.
3	21	DATA1	IN/OUT	
4	22	DATA2	IN/OUT	
5	23	DATA3	IN/OUT	
6	24	DATA4	IN/OUT	
7	25	DATA5	IN/OUT	
8	26	DATA6	IN/OUT	
9	27	DATA7	IN/OUT	
10	28	$\overline{\text{ACKNLG}}$	OUT/(IN)	About a 12-microsecond pulse. Low indicates that data has been received and that the scanner is ready to accept more data.
11	29	BUSY	OUT/(IN)	When this signal is high, the scanner cannot receive data. The signal is high: 1) during data entry 2) during scanning 3) when the scanner is not ready 4) when the scanner has an error
12-15	—	NC	—	Not used
16	—	GND	—	Logical ground level
17	—	C-GND	—	Scanner chassis ground
18	—	NC	—	Not used
19-30	—	—	—	Twisted pair return signal ground level
31	—	$\overline{\text{INIT}}$	IN	When this signal level becomes low, the scanner is reset to the state when power is turned on. This level is usually high. The pulse width must be more than 50 microseconds at the receiving terminal.
32	—	NC	—	Not used
33	—	GND	—	Twisted pair return signal ground level
34-35	—	NC	—	Not used
36	—	DIR	IN	Low indicates the direction is input.

- Regarding Pin No. 19-30. "return" denotes the twisted-pair return, to be connected at signal ground level. For interface wiring, be sure to use a twisted-pair cable for each signal, and to complete the connection on the return side. These cables should be shielded and the ground connected to the chassis of the host computer and the scanner.
- All interface conditions are based on TTL level.

SCSI

Signal pin assignments

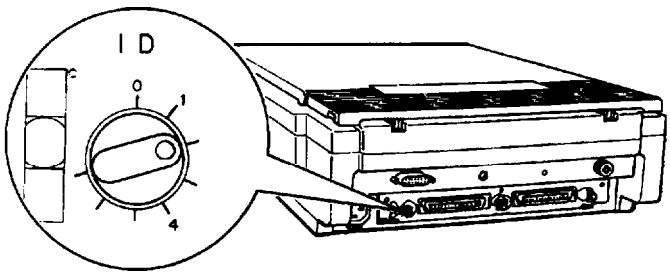
Signal	I/O	Pin No.	Description
GND	—	1-12 14-25 35-37 39-40 42	Ground
NC	—	13	Not connected
DB0	I/O	26	Data bus 0
DB1	I/O	27	Data bus 1
DB2	I/O	28	Data bus 2
DB3	I/O	29	Data bus 3
DB4	I/O	30	Data bus 4
DB5	I/O	31	Data bus 5
DB6	I/O	32	Data bus 6
DB7	I/O	33	Data bus 7
DBP	I/O	34	Data bus parity
TERMPWR	—	38	Termination power (+5V)
ATN	I	41	Attention
BSY	I/O	43	Busy
ACK	I	44	Acknowledge
RST	I	45	Reset
MSG	O	46	Message
SEL	I/O	47	Select
C/D	O	48	Control/Data
REQ	O	49	Request
I/O	O	50	Input/Output

SCSI Setup

SCSI ID number setting,

The factory default of the scanner's SCSI ID is number 2. The computer is always ID number 7. If you are going to add the scanner to a system in which one of your SCSI devices already has a SCSI ID of 2, change the ID number of the scanner to an unused number as described below.

1. Locate the SCSI ID rotary switch next to the SCSI connectors on the rear panel of the scanner.

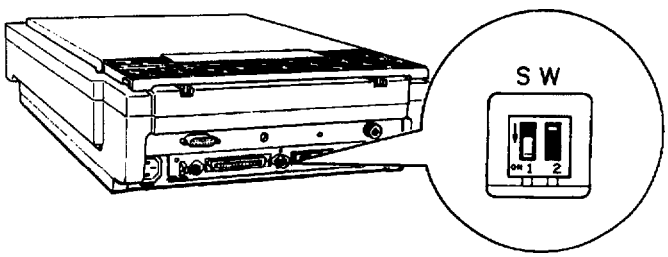


2. To change the SCSI ID, turn the small dial to the desired number.

Caution:
Do not set the SCSI ID to 8 or 9, and ***do not set the*** ID ***number to an ID that is already assigned to another device. The*** computer, scanner, and ***other devices will not function properly.***

Terminator setting

If the scanner is the only SCSI device you are going to connect to your computer or if it is the last device in the daisy chain, leave the terminator on. The terminator is on when Switch 1 of the terminator switches, located between the SCSI connector on the rear panel, is on. See below for the location of the switches.



The scanner should always be the last device on the daisy chain. You do not need to change the factory settings for the terminator switches as long as the scanner is the only SCSI device or the last SCSI device in the daisy chain.

If you decide to connect the scanner in the middle of the daisy chain, turn terminator Switch 1 off. (Switch 2 must always be off.)

Error Codes

COMMAND Errors

Cause:	An unidentified command is detected.
Disposition:	The scanner ignores the command or parameter. (Therefore, the current settings or the default values remain in effect.) The scanner sends a NACK, and waits for the next command or parameter.
Indications:	ES-600C READY LED comes ON ERROR LED comes ON
Remedy:	The error condition is cleared when the scanner receives a correct command.

INTERFACE Errors

Cause:	A wrong procedure is detected in interface communications. With a SCSI, a transition is frozen more than 30 seconds, except for the BUS FREE phase.
Disposition:	The lamp goes OFF and the scanner stops operation.
Indications:	ES-600C READY LED goes OFF ERROR LED blinks
Remedy:	Turn the scanner off and then back on. Press the RESET button. The INIT signal in the parallel interface turns active. The RESET signal in SCSI turns active. Complete BUS DEVICE RESET message in the SCSI.
Acceptable commands:	None.

FATAL Errors

Cause:	The lamp is broken. Power is turned on without removing the transportation screw. System breakdown. An error related to the ADF is detected, such as cover open, paper jamming, etc.
Indications:	ES-600C READY LED blinks. ERROR LED blinks.

Remedy: Turn the scanner off and then back on.

Press the RESET button.

Send ESC @ codes to the scanner.

The INIT signal in the parallel interface turns active.

The reset signal turns active in SCSI.

Complete BUS DEVICE RESET message in the SCSI.

Acceptable commands: ESC F, ESC f, ESC @

OPTION* Error *(Available only when* an *option is installed and enabled with ESC e)

Cause: An error related to the option is detected, such as cover open, paper jamming, etc.

Indications: ES-600C READY LED blinks.
ERROR LED blinks.

Remedy: This error condition is cleared when the cause of the error is corrected.

Information Reference List

Engineering Change Notices

None

Product Support Bulletins

None

Technical Support Bulletins

None

Related Documentation

TM-ES600C	ES-600C Service Manual
PL-ES600C	ES-600C Parts Price List
SPKES600C	ES-600C Self Paced Kit
4001572	ES-600C User's Guide
TM-B813021	Transparency Unit Service Manual
PL-B813021	Transparency Unit Parts Price List
SPKB813021	Transparency Unit Self Paced Kit